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Some Astronomical Observations in part already made,
partly to be made.

1. Lunæ ad Pleiadas Appulsus A. 1672. Februar. 23. ft. v. Observatus Derby Anglorum à Johanne Flamstedio.

A Ltâ Lunâ $20^{\circ}.50'$. cepi ipsius Diametrum $32'.48''$; & altâ ipsâ $19^{\circ}.23'$. rursus eam cepi, $32'.47''$. Ergo Luna in Horizonte Semi-diameter erat vera $16'.19''$. Plus tamen etiamnum ab Occidentali stella Pleiadum absuit quàm commodè caperet Telescopium. At —

H. 11. $19^{\frac{1}{2}}$ p. m. altâ \star^b , occidentali Pleiadam $9^{\circ}.50'$; ejusdem stella distantiam cepi à cornu Lunæ proximo $11'.58''$. divertens deinde subito ad \star^c altitudinem (ostensam quadrante, 20 digitorum radio, ad Tubi latus affixo,) notandam, & continuo reversus, stellam (quippe tunc à Luna tectam,) non comperi. Interea Luna descenderat minuta 10, simulq; tantundem Stella, quam subjisse Lunam h. 11. $20^{\frac{1}{2}}$ ex sequente phasi conjicio: Etenim

H. 11. $30^{\frac{1}{4}}$, altâ \star^c $8^{\circ}.43'$, Stellam c à Luna tectam conspexi: Ejus cum cepissem à cornu proximo distantiam $16'.35''$, spatium temporis inter hujus & præcedentis occultationem, editis supputationibus constitui $9'.37''$; qua temporis hujus phaseos sublata, dant utique præcedentis Occultationis tempus ut constitui.

H. 11. $37^{\frac{1}{2}}$, altâ \star^c $11^{\circ}.37^{\frac{1}{2}}$, ipsa Lunam subiit, me interea distantiam ejus dimetiente $22'.36''$. à cornu Lunæ apparenter inferiori, sed superiori verè. Deinde protinus vicinum pone tectum Luna descendens, amplius hac vice nequirit à me observari. Erat, stellâ evanescente, Luna semidiameter apparens $16'.21''$. quæ propterea occultata erat $87^{\circ}.25'$. peripheria lunaris à cuspide superiori, cujus erat reclinatio (à linea per Centrum ejus, Eclipticæ ducta perpendiculari) $1^{\circ}-37'$. Sic subingressus stellæ fuit $4^{\circ}.12'$. supra lineam per Centrum Lunæ Eclipticæ ductam parallelam, & Luna centrum in antecedentia \star^c $16'-18''$. cum minori latitudine $1^{\circ}-12'$.

Fixa locus Authori Carolino $\times 25^{\circ}.1'.24''$; latitudo perpetua $4^{\circ}.20'.39''$. quàmobrem Luna locus apparens horâ apparenti Derby $11^h-37^{\frac{1}{2}}$ p. m. erat $\times 24^{\circ}.45'.6''$. & latitudo visa $4^{\circ}-19'.27''$. Bor. Maturiores, semihorâ fere, apparentias supputationes nostræ tabulis Carolinis promiserant, quarum ut certum à calis dissensum consequar, Lune locum ad hanc ultimam phasim ab iis eruo, nec non à Tabulis Bullialdi

Bullialdi Philolaicis, quas parum melius caelos affectas comperio. Etenim Hora apparens Derbiæ 11^h. — 37'. 30". media erat Anthori Carolino 11^h. 34'. 51" ; sed Londini 11^h. — 39'. 51". Bullialdo tempus esset medium Derbiæ 11^h. — 46'. Uraniburgi 12^h. — 41'. unde motus ab illorum tabulis hi colliguntur ;

	Bullialdo.	Streetio.
<i>Solis Anomalia media</i> —————	8— 6— 45— 29	8— 6. 34— 15
<i>Locus verus</i> —————	✕. 15— 21— 52	✕. 15— 17. 21
<i>Lunæ Anomalia media</i> —————	5— 21— 36— 13	5. 21. 38. 41
<i>Distantia à ☉ 1^o æquata</i> —————	2— 9— 40— 29	2. 9— 38. 15
<i>Locus in Ecliptica</i> —————	8. 25— 54.	8. 25— 47. 48
<i>Latitudo vera borea</i> —————	4— 59 ¹ / ₂	. 4— 59— 42.
<i>Recta ascensio solis.</i> —————	346.	28.
<i>Temporis</i> —————	74.	22.
<i>Medii cœli</i> —————	160.	50.
<i>Medium cœli</i> —————	119.	15.
<i>Ejusdem declinatio</i> —————	8.	0.
<i>Altitudo</i> —————	45.	9.
<i>Horoscopus</i> —————	118.	43.
<i>Distantia medii Cœli ab Horoscopo</i> —————	69.	28.
<i>Angulus occidens</i> —————	49.	12.
<i>2^a distantia, secundum Eclipticam, Eclipti-</i> <i>calis ab horoscopo</i> —————	7.	6.
<i>In magno circulo</i> —————	8.	40.
<i>Altitudine</i> —————		63. 10".
<i>Parallaxis Lunæ in longitudine</i> —————		47. 29.
<i>Latitudine</i> —————		41. 16.
<i>Ergo Luna visa</i> —————	8. 25.	0. 0.
<i>Cum latitudine Boreali</i> —————	4.	18. 26.

Tabula propterea Carolinæ cælos exsuperant longitudine 14'—53", à quibus latitudine deficiunt 1'—1". Etiamſi in Eclipſi nãpera (Sept. $\frac{8}{18}$) cum iis quàm proximè conveniebant. Locus fixæ Philolæicus 13 25°. 4'; Propterea tres tantum ſcrupulos minus quàm Carolinæ, Bullialdi deviant tabulæ; quæ in eodem lunari deliquio 20'. 51" temporis cælos anticipabant.

Notatu præterea digniſſimum, quòd, etiamſi omnes ferè omnium Aſtronomorum hypotheſes, Luna plena Perigea in quadraturis majorem tribuant diametrum, & proinde minorem à terra diſtantiã quàm in ſyzygiis aut Oppoſitionibus Perigeis; Contrarium tamen cœlitus fieri & evenire: Luna etenim plena Perigea tranſiens juxta Pleiadas Nov. 6. 1671. majorem habebat diametrum quàm in hoc tranſitu, quando in eodem ferè loco à Sole diſtitiſt gradus 70 Luna ſemidiãmeter horizontalis.

Nov. 6. 1671. Bullialdo. 17'. 00"	Streetio 16 30	Obſervata 17. 00
Febr. 23. 1672. Bullialdo. 17—50	17. 13	16—19
<hr/>	<hr/>	<hr/>
+ 50	+ 43	— 41

Amplius non nunc miramur, Lunam tam diu numerorum recuſaſſe vinculos, & de tabulis ſupputata apparentiarum tempora uſque ad eò expectationes noſtras feſelliſſe; à falſis quandoquidem hypotheſibus ipſas plerumque conſtructas fuiſſe liquet. At ubi nunc quarenda Luna? Verſatilis planeta noſter abiit, exceſſit; Et nulli numeri ductores, nulla tabulæ, quæ non à ſuo cœleſti tramite nos deducant. Morandum pauliſper, donec accuratiſſimæ diametrorum obſervationes, commodiſſimis orbitæ locis habitæ, qualibus eiantur motibus, & quibus tandem legibus ij motus ſint obnoxii, aut quibus inveſtigandi & coercendi numeri, oſtenderint.

2. Jovis ad Fixam $\alpha^{\circ} 48$. Regressus, *Derbia* Anglorum observatus, *Maii* diebus 24. 26, 27, 28, & 30. It. v. A. 1672. à *Joh. Flamstedio*.

Die 2. *Maii* 24, alto 4 $24^{\circ}-10'$. hor. 10. 00'. humilior erat ejus centrum quàm stella, $7'-46''$; à qua semel ejus cepi distantiam $20'.0''$. & deinde $19'.54''$. in antecedentia Fixa stabar.

Die ☉. 26. has habui, nec inaccuratas, Cælo sereno.

Alto 4 $33-30=8-46$ distantia centri 4' à fixa ———— $10-04$. *
 $31-50=9-00$ fixa altior erat quàm 4 ———— $6-30$
 $29-10=9-20$ altitudinum differentia erat ———— $6-38$ *
 $27-26=9-33$ differ. Azimuthorum 4' & Fixa ———— $7-19$
 $27-00=9-36$ distantia 4' à fixa denuò capta ———— $10-02$

Die ☽. 27. ventis interdum tubum moventibus, observabam

Alto 4 $31-24=8-59$ centri à fixa distantiam ———— $6-02$ *
 $30-30=9-7$ Azimuthorum differentiam ———— $1-50$
 $29-13=9-16$ eandem rursus differentiam ———— $1-52$ *
 $28-10=9-23$ centri 4' à fixa distantiam ———— $6-01$

Die ☿. 28. ventis valide flantibus & Telescopium concutientibus notavi.

Alto 4 $31-8=8-57$ à fixa distantiam centri 4' ———— $6-02$ *
 $28-10=9-19$ differentiam Azimuthorum centri, &c. ———— $3-29$
 $26-30=9-31$ isthanc differentiam rursus ———— $3-32$
 $26-08=9-34$ distantiam rursus ———— $6-07$

Die 4. 30. alto 4 $26^{\circ}-15'$. hor. 9-36'. Cælo satis sereno & quieto, Jovis distantiam à fixa cepi $15'-38''$. Hac & precedente nocte in consequentia fixa erat, antea semper in antecedentia.

Ad Jovis locum ab his observationibus obtinendum angulos supputavi parallacticos

	dies. h.	dies h.	h.
<i>sive circuli verticalis</i>	26. 9. 00.	27. 9-07	28. 9-19
<i>cum Ecliptica — } Maii--</i>	80=47 . .	79=49 . .	78. 36.
4° à fixa distantia observata	... 10—0"	... 6. 02	... 6—03
<i>differentia obs. alt. —</i>	... 6-30	<i>Azym. I—50</i>	<i>Azym. 3—30</i>
<i>Ergo angulus positionis —</i>	31-01 .	62. 38.	66. 03.
<i>Et planeta in antecedentia fixa</i>	... 8. 38	... 2. 51	<i>conf. 2. 27</i>
<i>cum minori latitud. Boreali—</i>	... 5-11	... 5. 19	... 5. 32

Fixa latitudo Tychonica 1°-20'-30"-Bor. Locus mihi 9°-57'. 30"; at Streetio 9°-54'. 09", cui propterea locus 4 ;

	Ab epilogismo	Error	Lat. ob-	Lat. sup-	Error
<i>Maii. h.</i>	<i>tabularū Ca-</i>		<i>serv.</i>	<i>putata</i>	
	<i>rolinarum</i>				
26. . 9. 00.	9-45-31	9-40-51	1. 15. 19	1. 16. 39	+1. 20
27. . 9. 07. in m	9-51-18	9-46-28	1. 15. 11	1. 16. 28	+1. 17
28. . 9. 19.	9-56-36	9-52-16	1. 14. 58	1. 16. 17	+1. 19

Quid amici de hoc phenomēno observarint, nondum audio, tametsi quotidie audire expecto. De transitu, Junii 30. expectato, nihil observare potui ob nubes & pluvias, dictis illis precedentibus & sequentibus frequentissimas.

3. Martis observatio ab eodem J. Flamstedio.

A Nno eodem 1672. Maii 14. st. v. mane, Ibat δ^{iii} sidus prope stellam, dictam, Quæ ad Clunes Aquarii; cujus latitudo 2° . 0'. 0". locus tum mihi 24° . 12'. 09" \approx ; Streetio, 24° -09'. 06". è qua notabam,

Altâ fixâ verè 9. 40. 2. 29 mane, Martis in eodem Azymutho } 24-17
præcise distantiam ————— } vide
11-12. eandem denuo distantiam ————— 24. 24
h. } Fig. 2.
12. 00. 2. 51. planeta discesserat ab eodem Azymutho } 0. 55
eratque ad ortum à linea: Azym. differentiâ — }

Horâ 2. 29 mane. Angulus parallaxicus erat	82. 26	;
Ergo δ in consequentia fixæ	3 . 11	
cum majori latitudine Australi	24 . 04	
δ propterea latitudo	2 . 24 . 04	
locus verus	Streetio \approx 24. 12 . 17	
	Mihi \approx 24. 15 . 40	
At locus Martis è tabulis Carolinis supputatus	\approx 24. 17 . 22	
Scil. jústo promotior 5'. 5". latitudo vera, 2°. 27'. 29". major etiam observatâ. 3'. 25".		

4. Apographum Epistolæ à Dn. Johanne Flamstedio, Astronomo Derbieni, ad Editorem scriptæ, de Transitu Planetæ Martis ad tres Fixas in \times , celebrando mens, Sept. & Octob. 1672.

— **M**isto Tibi Schema Transitus δ ad tres Fixas in \times , ut fidem ea de re pronuper datam liberem. Rem ut potui deproperavi, ne quibus visum Tibi fuerit prædictionem hanc impertiri, maturè se parent ad curatas ejusmodi habendas Observationes, quales Phasis hæc deposcit.

Locorum δ in Ephemeride subjectâ calculum inii ex Tabulis Streetii ad h. 8. o'. p. m. Derbiæ, & tempus æquale. Ea quæ ex Heckero transcripta sunt, ad eundem reduxi. Accuratum subduxi calculum loci Planetæ ex Tabb. Streetii, ut diurnus ipsius motus inveniaturs exactè, ad comparandum cum cum observatis motibus in dato spatio temporis, atque ad Parallaxes inveniendum; quanquam in ea sim sententia, quam bene fundatam putem, Heckeri Ephemerides vera loca δ longè propius ostendere, quàm Streetii numerum.

1672. Derbie δ^is locus in h.8.0°.0'. p.m.	δ^is X.	Latitudo M. A.	Dist. δ^is à Terra quod. \odot 100000	Heckeri δ in X.	Eph. m. Lat. M. A.	δ^is Parallax. Direct. Repl. Wing.		
Sept. 15	13. 11. 13	4. 50. 11	41318	12. 54	4 46	0.36	2.25	5.41
ft. ver. 16	13. 1. 26	4. 45. 26		12. 45	4 4.			
17	12. 52. 25	4. 40. 43		12. 36	4 37			
18	12. 44. 10	4. 36. 0	42296	12. 28	4 33	0.35	2.22	5.3
19	12. 36. 41	4. 31. 10		12. 22	4 28			
20	12. 29. 58	4. 26. 21		12. 14	4 24			
21	12. 24. 0	4. 21. 34	43385	12. 8	4 19	0.34	2.18	5.25
22	12. 18. 48	4. 16. 43		12. 4	4 14			
23	12. 14. 24	4. 11. 52		12. 0	4 9			
24	12. 10. 46	4. 7. 0	44589	11. 56	4 4	0.33	2.14	5.16
25	12. 7. 56	4. 2. 9		11. 53	4 0			
26	12. 5. 3	3. 57. 18		11. 51	3 55			
27	12. 4. 38	3. 52. 27	45895	11. 50	3 50	0.32	2.11	5.7
28	12. 4. 12	3. 47. 38		11. 50	3 45			
29	12. 4. 34	3. 42. 50		11. 50	3 40			
30	12. 5. 43	3. 38. 3	47302	11. 51	3 36	0.32	2.7	4.58
Oct. 1	12. 7. 42	3. 33. 16		11. 53	3 31			
2	12. 10. 29	3. 28. 30		11. 56	3 26			
3	12. 14. 4	3. 23. 46	48804	12. 0	3 21	0.31	2.3	4.49

Solis parallaxis horizontalis est Streetio ————— 0. 15.
 ————— Keplero ————— 1. 0.
 ————— Wingio ————— 2. 21.

Unde, nec non ex distantis δ^is à Terra, inveni Parallaxes ejus prout in Tabula; quæ cum satis ample sint & quantitate sensibili in instrumentis meis, non dubito, me, favente Deo, faciliè inventuram, admittat. ne ipsas Cælum. Minores eas expecto Keplerianis; majores Streetianis. At verò compertum cum habeam, quantum conjectura mea contra hac aberraverint, volo planè ut ducant me Observationes meæ, torquere eas nolo.

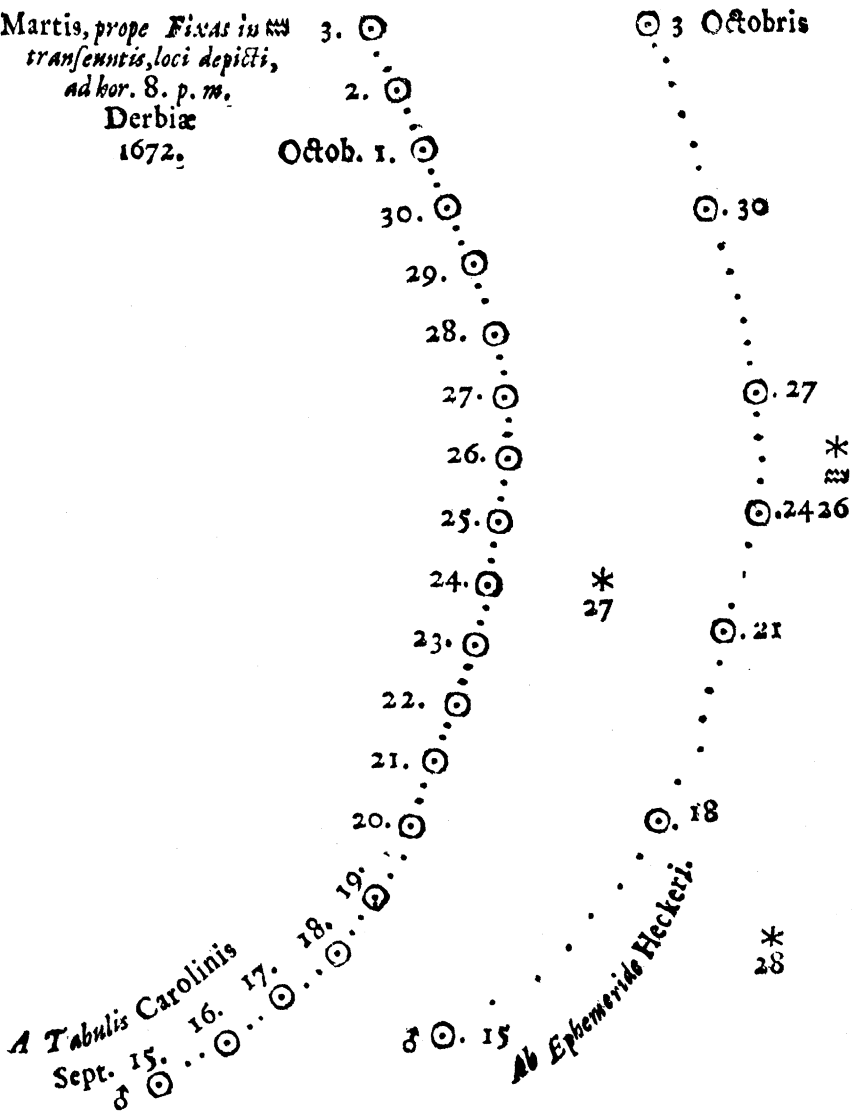
Rogo Observatores, ut nudas mihi Observationes suas communicent, notatis earum ritè habitatum temporibus; quibus meas adjicere non detrectabo, si iis instituendis Cæli annuerint. Vale.

Pub. Derbie d. 31.
 Julii 1672.

Martis, prope Fixas in ∞
transiens, loci depicti,
ad hor. 8. p. m.
Derbiæ
1672.

Octob. 1.

3 Octobris



A Tabulis Carolinis
Sept. 15.

Ab Ephemeride Heckeri.

	Streutio	Keplero	Lat.	
∞ 26	11—40—22	11—44 . 0	3—58 . 0	
* 27	12—8—22	12—12—0	4—10—30	Auf.
28	12—11—52	12—15—30	4—44—0	
	\times	\times		

An